

REMARKS

Claims 1, 8, 12-15, 18, and 20-22 are pending in the application. Claims 2-7, 9-11, 16-17 and 19 have been cancelled herein. Claims 20-22 are added herein. Claims 1, 20 and 22 are the only independent claims.

A substitute specification is enclosed herewith. No new matter has been added to the application via the amendments incorporated in the substitute specification.

Drawings The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4), in that reference characters 22, 23, 24 and 25 have been used to designate multiple elements in the drawings. The drawings also are objected to as failing to comply with 37 CFR 1.84(o) in that all blocks in Figs. 4 and 7 are not labeled with descriptive legends.

In response to the objections to the drawings, applicants enclose herewith an amended drawing sheet, containing Figs. 4 and 7, with proposed drawing changes marked in red ink. The proposed changes include (a) changing reference characters 22, 23, 24 and 25 to characters 66, 67, 68 and 69, respectively, and (b) adding descriptive legends to Figs 4 and 7. The proposed changes to the reference numbers and legends conform to the specification. No new matter has been added.

In anticipation of the Examiner's acceptance of the hereby proposed changes to Figs. 4 and 7, applicants enclose herewith a substitute drawing sheet in black ink, to replace the drawing sheet currently on file in the application.

Specification

The disclosure stands objected to because of a number of informalities.

In response to the Examiner's objections to claims 1 and 9, those claims have been amended as suggested by the Examiner

In response to the objection to the specification, applicants enclose herewith a substitute specification incorporating changes as warranted by the Examiner's observations. All of the changes suggested by the Examiner have been made. New reference numerals have been provided for the infrared sensor, infrared receiver, infrared transmitter and infrared emitter of Figure 7 and accord with the proposed changes indicated on the red-lined sheet of drawings enclosed herewith.

The specification has been additionally amended to conform the specification to American grammatical idiom and spelling. None of these changes constitutes the addition of new matter.

Claims Rejections - 35 U.S.C. §§ 102 and 103

Claims 1 and 2 stand rejected under 35 U.S.C. § 102(b) as being anticipated by **Dagle**, U.S. Patent No. 3,638,213.

Claims 3, 6, 7, 14 and 19 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over **Dagle** in view of **Lurkis**, U.S. Patent No. 4,101,876.

Claim 4 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over **Dagle** in view of **Lekhtman**, U.S. Patent No. 4,183,019.

Claim 5 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over **Dagle** and **Lekhtman** in view of **Chesnutt**, U.S. Patent No. 5,966,081.

Claim 9 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over **Dagle**, **Lekhtman** and **Chesnutt** in view of **Lurkis**.

Claim 10 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over **Dagle** in view of **Diaz-Lopez**, U.S. Patent No. 5,694,867.

Claim 11 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over **Dagle** in view of **Andrews**, U.S. Patent No. 5,757,271.

Claims 16 and 17 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over **Dagle** and **Lurkis** in view of **Binkley**, U.S. Patent No. 4,868,543.

The Examiner has indicated that claims 8, 12-13, 15 and 18 would be allowable if rewritten in independent form to include all of the limitations of the base claim and any intervening claims.

Claim 20 New independent claim 20 is equivalent to original claim 18 rewritten in independent form to include all of the limitations of the base claim (claim 1) and any intervening claims (none). Pursuant to the indication by the Examiner, independent claim 20 is considered to be patentable over the prior art.

Claim 22 New independent claim 22 relates to a security device particularly suitable for a valuables case. The security device comprises at least one battery mounted to the portable valuables case, at least one light-responsive means installed in the portable valuables case, an alarm system, and control means operatively connected to the light-responsive means and the alarm system for controlling the alarm system to emit an alarm upon a reduction in the amount of light falling on said at least one light-responsive means.

Dagle discloses an electrical alarm system wherein light sensors are disposed in a bank teller's cash drawer. Upon the removal of all the bills from the drawer, an alarm is generated at a remote location (121). Thus, the control circuit of the **Dagle** alarm system activates the alarm when the light sensor is *uncovered*. This is *opposite* to applicant's design where the alarm is emitted when the light sensor is covered.

Although the **Lurkis** reference discloses a system for activating an alarm regardless of whether the light falling on a photosensor is increased or decreased, this reference could not motivate one of ordinary skill in the art to modify the system of **Dagle** so that the alarm is emitted when the light sensor is covered. Such a modification would not work where the purpose is to detect the unauthorized removal of paper money from a cash drawer in a bank.

Lekhtman also discloses a device wherein an alarm is triggered only upon an *uncovering* of a photosensor.

Chesnutt is directed to a paging activated electronic security system. **Chesnutt** says nothing about sensing ambient light levels and concomitantly discloses no photosensor or light detector.

Diaz-Lopez relates to a fail-safe access control chamber security system. **Diaz-Lopez** discloses the use of photocells to detect the presence of people, but says nothing about placing a photocell in a portable valuables case or activating an alarm upon a covering of a photocell in a portable valuables case.

Binkley describes a remote mailbox alarm system wherein a remote alarm is sounded when mail is placed in the mailbox. This reference would perhaps suggest a valuables case wherein an alarm is generated when a valuable is placed in the case.

Andrews concerns a method of providing security for an electronic device such as a laptop computer wherein an alarm is generated when two electronic devices are not within a range of proximity to one another.

None of the references relied on by the Examiner, whether considered in isolation or together in combinations, either discloses or suggests a security system for a portable valuables case wherein control means are operatively connected to a light-responsive means and an alarm

system for controlling the alarm system to emit an alarm upon a reduction in the amount of light falling on the light-responsive means.

Claim 1 In response to the rejection of claim 1 under 35 U.S.C. § 102(b), applicants have amended that claim herein to provide a better definition of the invention. Applicants respectfully maintain that claim 1 as amended distinguishes the invention over the prior art and particularly over the art relied on by the Examiner in rejecting the claims of the instant application.

Amended claim 1 is directed to a security device for a portable valuables case, comprising at least one battery, at least one light-responsive means installed in the portable valuables case, a signal transmitter unit installed in said portable valuables case, a control device for the signal transmitter unit, a control means electrically connected to the at least one light-responsive means and arranged to control the signal transmitter unit, a remote receiving unit arranged to receive signals transmitted by the transmitter unit, an alarm system located in the remote receiving unit, and an alarm control means for the alarm system arranged to be controlled by the remote receiving unit and the control means.

None of the references relied on by the Examiner, whether considered individually or collectively with one or more other references, either discloses or suggests the security device of claim 1 wherein an alarm system at a receiving unit remote from a valuables case generates an alarm in response to a change in light condition detected by a light-sensitive sensor on the valuables case.

Dagle discloses an electrical alarm system wherein light sensors are disposed in a bank teller's cash drawer. Upon the removal of all the bills from the drawer, an alarm is generated at a

remote location (121). As disclosed in the **Dagle** reference, the alarm circuit is connected by wires to the light sensing circuit.

The **Lurkis** reference also relates to a photoelectric security system. All of the circuits in the **Lurkis** system comprise wires and electrical leads.

Conclusion

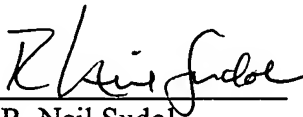
For the foregoing reasons, independent claims 1, 20, and 22, as well as the claims dependent therefrom, are deemed to be in condition for allowance. An early Notice to that effect is earnestly solicited.

Should the Examiner believe that direct contact with applicants' attorney would advance the prosecution of this application, the Examiner is invited to telephone the undersigned at the number below.

Respectfully submitted,

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Dated: June 25, 2003

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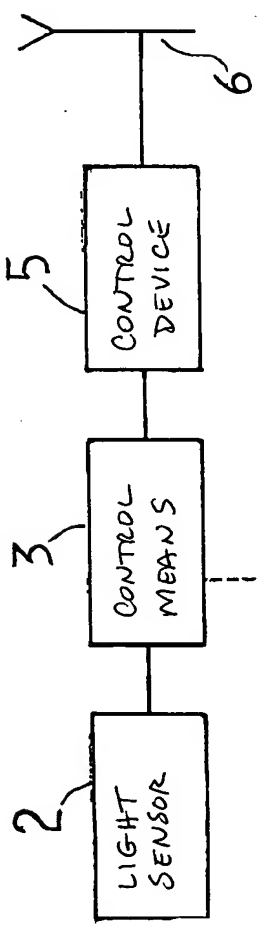


Fig. 4

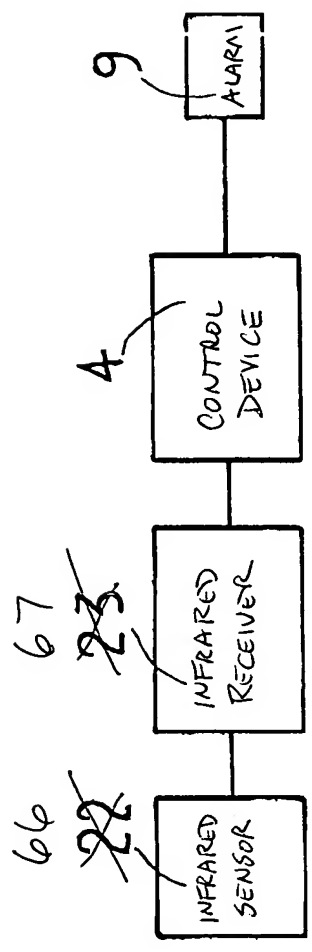
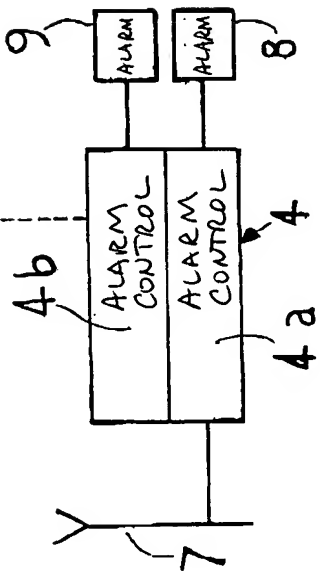
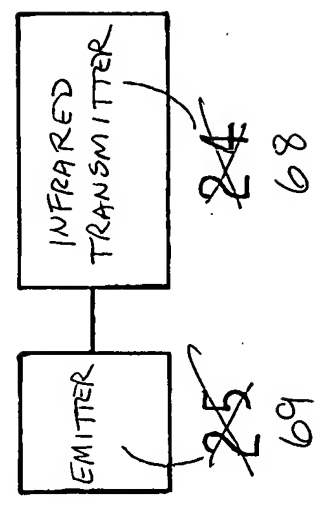


Fig. 7



A SECURITY DEVICE PARTICULARLY SUITABLE FOR VALUABLES CASES

5 BACKGROUND OF THE INVENTION

The present invention relates to a security device particularly, ~~but not exclusively,~~
suitable for portable valuables cases, e.g., those used for ~~jewellery~~ jewelry, cash and the like.

As known, some cases of ~~jewellery~~ jewelry theft, even of ~~jewellery~~ jewelry of substantial
10 monetary value, take place in ~~jewellers'~~ jewelers' shops when the ~~jewellery~~ jewelry is taken out
of the safe in either their rigid or flexible (roll-up) cases and placed on the counter to be
displayed for examination by the potential customer. The thief usually asks to view several cases
and then, using some stratagem to distract the shopkeeper, grabs a case, such as a roll-up case,
hides it in his clothing that is usually loose and has suitably prepared pockets, and then makes his
15 getaway almost always without being stopped. When the shopkeeper becomes aware that the
goods are missing it is too late.

OBJECTS OF THE INVENTION

The main object of the present invention is to provide a security device suitable for
preventing or exposing the thief immediately and if necessary track him.

20 Another object of the present invention is to provide an easily hidden security device that
is highly effective and that has relatively low production costs.

SUMMARY OF THE INVENTION

These and other objects that will be better appear below, are achieved by a security
device ~~particularly suitable for valuables cases, having at least one electric power source and~~
25 ~~alarm system, characterised in that it comprises at least one light responsive means that is~~
~~installed in a valuables case and can be energized by the said electric power source upon control~~

and by a change in environment lighting conditions, whereby generating at least one control signal for energizing the said alarm system for a portable valuables case, comprising at least one battery, at least one light-responsive means installed in the valuables case, a signal transmitter unit installed in said portable valuables case and designed to be controlled by said control means, a control device for said signal transmitter unit, a control means electrically connected to said at least one light-responsive means and arranged to control said signal transmitter unit, a remote receiving unit arranged to receive signals transmitted by said transmitter unit, an alarm system located in said remote receiving unit, and an alarm control means for said alarm system arranged to be controlled by said remote receiving unit and said control means.

Advantageously, a security device according to the present invention for a valuables case comprises a satellite transmitter connected to said electric power source and remote control device arranged to energize the said satellite transmitter.

BRIEF DESCRIPTION OF THE DRAWINGS

Further aspects and advantages of the present invention will better appear from the following description of some embodiments thereof given merely by way of non-limiting examples, with reference to the accompanying drawings, in which:

FIGURE 1 is a diagrammatic perspective view of a fully rolled up roll-up jewellery case;

FIGURE 2 is a perspective view of the roll-up case shown in Figure 1 when unrolled or open;

FIGURE 3 shows a circuit diagram for a first embodiment of a security device according to the present invention;

FIGURE 4 is a block diagram of a security device according to the present invention;

FIGURE 5 is a circuit diagram for a second embodiment of the security device according to the present invention;

FIGURE 6 is a circuit diagram for a another embodiment of the present invention; and

FIGURE 7 shows a block diagram of a device according to the present invention using
5 emitters and infrared sensors.

The same or similar parts in the drawings have been indicated with the same reference numerals.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

With reference firstly to the above-listed Figures and to Figure 4 in particular, it will be
10 seen that a security device for a valuables case 1 comprises a light-responsive device, in this case a light sensor 2, installed, as can be seen in more detail in Figure 2, in a valuables case and electrically connected to a control means 3, further described in detail below.

The control means 3 can be connected to a control device 4 for an alarm system (8, 9).

Such a control device 4, in the embodiment illustrated in the block diagram of Figure 4, is
15 located outside the valuables case so in this instance there must be a transmitter unit in the valuables case consisting of a control device 5 and a transmitter 6 controlled by the light sensor's control device 3.

Of course, the control device 4a, in this embodiment, is connected to a receiver 7 that receives signals transmitted across the airways by the transmitter unit 6.

20 According to a further aspect of the invention, the valuables case 1 has one or more satellite transmitters that, once energized, e.g., by means of a signal sent across the airways from inside the jewellery jewelry shop, to enable the roll-up case position to be identified if taken out of the jewellery jewelry shop.

A security device according to the present invention can of course have both of the alarm systems and in particular the light-responsive device to prevent the roll-up cases being hidden and taken out of the ~~jewellery~~ jewelry shop with the ~~jewellery~~ jeweler remaining unawares, and a satellite transmitter that enables the roll-up cases to be tracked if they are stolen, by burglary or robbery, and taken outside the shop building.

Figures 1 and 2 particularly show an embodiment of the security device according to the present invention applied to a roll-up valuables case 1. In this embodiment both the alarm control and the alarm itself, e.g., a siren, are located in the valuables case itself.

The valuables case 1 is provided with one or more light sensors 2 advantageously arranged at the two edges of the case 1.

The light sensors 2 can be energized by the use of a key, that can be preferably ~~eustomised~~ customized, for opening and closing a switch 11 that permits connection of the safety device to an electric power source, e.g., a battery 10 (Fig. 3).

Once the light sensor 2 is activated it is electrically connected to a number of electrical circuits and when there is a sudden drop in light intensity in the surrounding environment (the ~~jewellery~~ jewelry shop), as would occur if there were an attempt to hide the valuables case in clothing, a circuit closes down, as will be explained particularly ~~in the~~ with references to Figures 3, 5 and 6, with resulting activation of the alarm system, e.g., a sounder.

In further detail, as in a first embodiment of the invention as illustrated in Figure 3, the security device according to the present invention comprises a battery 10 that can be connected, by switching the switch 11 using a ~~eustomised~~ customized key, to an electronic device activated by two photodiodes 2a and 2b, that are themselves connected in parallel and constitute the light sensor 2.

Since a photodiode is an electronic reverse-bias component and is constructed with a small transparent window that permits the light to strike an internal junction, when this component is ~~in fact~~ struck by light from a light source it is crossed by an inverse current, while in the absence of light such inverse current crossing it is negligible.

5 The light sensor 2 is connected to light sensor control means 3 that consists, in this embodiment, of a condenser 12 that is in turn connected via a transistor 14 to a photocoupler 13 comprising a diode 13a and a transistor 13b. Such a control means 3 further comprises a second transistor 14 whose collector is connected to the diode 13a.

10 The control means 3 is connected to a control device 4 comprising a third transistor 15 whose base is connected to the transistor 13b and whose collector is connected to an inductor 16 in parallel with a diode 17.

Moreover, the collector of the transistor 15, and thus the inductor 16 and the diode 17, are connected to the collector of the transistor 13b.

15 When the relay 18 closes it permits a siren 19 to be supplied with current and this emits a sound alarm.

Between the switch 11 and the control device 4, a light ~~signalling~~ signaling unit 19 that displays the level of charge in the battery 10 can be advantageously inserted. Such a unit, in detail, comprises two bridges with three resistors and a rectifier connected together via a LED 20.

20 From the point of view of the device construction, if it is desired to control the alarm by means of a control system located outside the valuables case, it is no longer necessary to use a circuit-closing relay 18 since the inductor 16 and switch 18a, that make up the relay itself, can be replaced by a signal generator and a transmitter, e.g., an antenna.

If required, the security device can also have a sensitivity selector 21 comprising a plurality of resistors 21a, 21b and 21c having current passing resistance characteristics that are different from each other, and that can, depending on requirements and by closing switches 22a, 22b, 22c and 22d, be connected by the user in series with the photodiodes 2 to adapt the sensitivity of the device according to the present invention to the actual environment lighting levels found in the room, shop, etc.

Once the circuit is closed and therefore activated by the switching of the switch 11, where the valuables case is struck by a certain quantity of environment light, the photodiodes 2a and 2b are crossed by a current that denies the transistor 14 supply, this acting as a switch.

If there is a fall in light levels from the environment to the light sensors below a pre-determined threshold, e.g., where the valuables case in which the security device is installed is hidden beneath clothing with a view to its theft, the photodiodes stop current flowing with the result that voltage at the base of the transistor 14 is altered, this latter acting as a switch, permitting the current to flow in the photocoupler 13.

Under these conditions the photocoupler 13 opens the switch (transistor) 15 that causes the switch 18a to close ~~owing to~~ because of the magnetic field generated by the inductor 16.

If the sounder or burglar alarm is not physically located on the valuables case, or if an additional alarm system is associated with the sound alarm system on the case, such additional system being for example one blocking off the shop exits, a transmitter unit (5, 6) must be provided on the valuables case that communicates with a receiver 7 located in such place that it can receive the transmitter's signal and, through control systems, control the alarm system for example.

According to a second embodiment of the present invention, as shown in more detail in

Figure 5, the security device can comprise advantageously operational integrated circuits.

The light sensor 2, in this case consisting of a single photodiode 2a, is connected to control means 3 that comprises a first operational amplifier 23 that has the function of comparing a stable voltage, as established by a zener diode 14 24, with the voltage at the ends of the photodiode 2a. The photodiode 2a has, advantageously, a condenser 25 in parallel designed to extend the circuit response time so as to avoid false alarms from brief obscuring of light sensors.

The output from the operational amplifier 23 is connected to the control device 4 and, in particular, said output is connected to the base of a transistor 26, whereas the collector of the transistor itself is connected to an alarm, e.g., a siren 9.

The control device 4 further comprises a second operational amplifier 27 with a non-inverting input 27a connected to the zener diode 24 and its inverting input 27b connected to the battery 10. The output of said second operational amplifier 27 is connected to a LED diode 20.

When voltage at the non-inverting input 23a of the operational amplifier 23 exceeds the voltage at the inverting input 23b, the amplifier takes the output to a high voltage level to permit ~~polarisation~~ polarization of the transistor 26 that, in its turn, becomes conducting and supplies voltage to the siren 9 thus activating the alarm that also in this case is a sound alarm.

The second operational amplifier 27 is also used to compare the stable voltage applied to the non-inverting input 27a at the end of the zener diode 24 with the voltage of the battery 10, in such a way that the fall in the battery voltage will lead to a high output voltage level of the amplifier itself with the resulting lighting on of the LED diode 20.

This embodiment can also advantageously be provided with a sensitivity selector ~~27~~ 21.

According to a further embodiment of the security device according to the present invention, as illustrated in the circuit diagram of Figure 6, the device has a sequencer device 30,

a battery control circuit 31, a light detection and control circuit 32, and a control device 4.

More particularly, the sequencer 3 30 comprises a flip-flop comprising two logic NAND-type gates 33 and 34, a resistor 35 and a condenser 36.

The battery control circuit 31 comprises four resistors 37a, 37b, 37c and 37d, a zener
5 diode 38 and two transistors 39 and 40, as well as a LED 41.

The luminosity detection and control circuit 32 includes four resistors 42, 43, 44 and 45, two photodiodes 2a and 2b connected in parallel to each other, three transistors 46, 47 and 48, a condenser 49 and a LED 50.

The control device 4 comprises two logic NAND-type gates 51 and 52, three resistors 53,
10 54 and 55, a condenser 56 and a transistor 57.

The security device according to the present invention is activated by closing switch 11, thereby supplying voltage to the whole of the electric circuit.

In the first stage, the sequencer 3 30 sends a signal to the battery control circuit 31 that, where the battery's own voltage is below a determined value, causes the LED ~~38~~ 41 to light up.
15 At the same time, the luminosity detection circuit 32 checks the luminosity in the environment and, if the light levels are insufficient, causes the LED ~~46~~ 50 to light up.

If this check is also successfully passed, the sequencer 3 30 sends a signal to the control device 4 that energizes, for a fraction of a second, the siren in order to check that it is working.

It is only at this point that the true alarm is activated, still by the sequencer 3 30, when
20 there is a sudden drop in luminosity at the photodiodes 2a and 2b for a determined length of time.

As can be seen more clearly in the block diagram in Figure 8 7, the security device according to the invention can, instead of the light sensors 2, infrared sensors ~~22~~ 66 connected by

means of an infrared receiver ~~23~~ 67 to the control device 4 of the alarm 9, that in the embodiment illustrated in Figure 5, is an acoustic type of alarm.

In this case, ~~of course,~~ an infrared transmitter 24 68 has to be installed along with an emitter 25 69 at each sales or display counter.

5 ~~Of course, if~~ If all or a part of the alarm system is located outside of the valuables case, it is possible to connect such an alarm system to several valuables cases, ~~thus much~~ thereby reducing the costs involved.

It has been found in practice how the security device according to the present invention makes it possible to immediately expose the thief and locate him as the case may be.

10 Moreover, the security device is highly efficient and reliable while being quite inexpensive to manufacture.

The security device particularly, though not exclusively, for portable valuables cases such as ~~jewellery~~ jewelry, cash and similar items as described above can be changed and modified within the scope as defined by the ~~appending~~ appended claims.

15 ~~The disclosures in Italian patent application no. VR2001A000007 from which this application claims priority are incorporated herein by reference.~~

~~Any reference sign following technical features in any claim has been provided to increase intelligibility of the claim and shall not be construed as limiting the scope of the claim.~~

20 The invention being thus described, it will be obvious that the same may be varied in many ways. Such variations are not to be regarded as a departure from the spirit and scope of the invention, and all such modifications as would be obvious to one skilled in the art are intended to be included within the scope of the following claims.